

REMARKS

This is in response to the Office Action dated April 22, 2003. New claims 50-58 have been added. Thus, claims 1-6, 8-18, 21-22, 24-28, 30-33 and 41-58 are now pending.

The claims have been amended as set forth above to address and overcome any potential issue under Section 112, second paragraph. The specification as filed clearly supports "at least one" dielectric layer as evidenced by the "(s)" in claim 27 as originally filed. See also the instant specification at paragraph 0025.

Claim 1

Claim 1 stands rejected under 35 U.S.C. Section 103(a) as being allegedly unpatentable over Zmelty in view of Arbab. This Section 103(a) rejection is respectfully traversed for at least the following reasons.

Claim 1 requires "b) a zinc oxide inclusive contact layer; c) a silver inclusive layer contacting the zinc oxide inclusive layer b); d) a nickel chrome oxide inclusive layer contacting the silver inclusive layer c)." In other words, claim 1 requires that the layer comprising silver must be located between and contacting a lower contact layer b) comprising zinc oxide and an upper contact layer d) comprising nickel chrome oxide. For example, see Fig. 1 which illustrates a sequence of $\text{ZnO}_x/\text{Ag}/\text{NiCrO}_x$.

Unexpected results of significantly improved durability are associated with the invention of claim 1; in particular where a layer comprising silver is between and

contacting a layer comprising zinc oxide and a layer comprising nickel chrome oxide.

For example, the instant specification states in paragraph [22] that:

"Surprisingly, it has been found that by using ZnO_x , ZnAlO_x , or the like for the lower contact layer(s) 7 and/or 17, while using NiCrO_x for the upper contact layer(s) 11 and/or 21, the resulting coated article can achieve a combination of high visible transmission and reduced sheet resistance R_s , as well as acceptable durability (mechanical and/or chemical). The highly durable NiCrO_x is used for the upper contact layers 11 and/or 21 for durability purposes, while the solar controlling ZnO_x , ZnAlO_x , or the like is used for the lower contact layer(s) 7 and/or 17 to improve visible transmission and/or other solar characteristics. In other words, the NiCrO_x provides good durability, especially when on top of the Ag layers, and the zinc oxide inclusive contact layer(s) enable high visible transmission to be combined with low sheet resistance R_s and/or good solar performance."

Neither Zmelty nor Arbab disclose or suggest an Ag inclusive layer sandwiched between and contacting a layer comprising zinc oxide and a layer comprising nickel chrome oxide. The surprising example advantages associated with the claimed invention are also not present in the cited art.

Zmelty discloses a layer sequence of $\text{ZnO}_x/\text{Ag}/\text{TiO}_x$. It has unexpectedly been found that the layer sequence of $\text{ZnO}_x/\text{Ag}/\text{NiCrO}_x$ (an example of claim 1) is surprisingly much more durable than the aforesaid layer sequence $\text{ZnO}_x/\text{Ag}/\text{TiO}_x$ of Zmelty. Zmelty's sequence is problematic in that it lacks durability (e.g., when exposed to common tests such as HCl tests). Thus, any alleged Section 103(a) modification to Zmelty (in view of Arbab) is overcome by this clear showing of unexpectedly improved durability resulting from the claimed layer sequence.

Other Example Claims

The other independent claims are also respectfully submitted to patentably define over the cited art in view of the unexpected results associated therewith.

For example, claim 11 calls for "a lower contact layer comprising zinc oxide; an infrared (IR) reflecting layer comprising silver contacting the lower contact layer comprising zinc oxide; an upper contact layer comprising at least one of an oxide of nickel, an oxide of chromium, and nickel chrome oxide which contacts the IR reflecting layer comprising silver." The cited art fails to disclose or suggest this claimed subject matter of claim 11. Moreover, the unexpected results associated with the same overcome any alleged Section 103(a) modification to Zmelty.

Claim 17 requires that "the pair of contact layers sandwiching the first IR reflecting layer therebetween includes a lower contact layer and an upper contact layer, and wherein the first IR reflecting layer includes Ag, wherein the lower contact layer comprises zinc aluminum oxide and is located between the first IR reflecting layer and the substrate, and the upper contact layer comprises an oxide of NiCr." Again, the cited art fails to disclose or suggest this claimed subject matter of claim 17. Moreover, the unexpected results associated with the same overcome any alleged Section 103(a) modification to Zmelty.

Claim 21 requires "an infrared (IR) reflecting layer sandwiched between and contacting first and second contact layers; and wherein the first contact layer includes zinc oxide and the second contact layer comprises nickel-chrome oxide." Again, the cited art fails to disclose or suggest this claimed subject matter of claim 21. Moreover,

the unexpected results associated with the same overcome any alleged Section 103(a) modification to Zmelty.

Claim 41 requires "b) a layer comprising zinc oxide; c) a layer comprising silver located over and contacting the layer b) comprising zinc oxide; d) a layer comprising an oxide of nickel chrome located over and contacting the layer c) comprising silver." The cited art fails to disclose or suggest this claimed subject matter of claim 41. Moreover, the unexpected results associated with the same overcome any alleged Section 103(a) modification to Zmelty.

Claim 48 requires "b) a layer comprising zinc oxide; c) a layer comprising silver located over and contacting the layer b) comprising zinc oxide; d) a layer comprising an oxide of at least one of Ni and Cr located over and contacting the layer c) comprising silver." The cited art fails to disclose or suggest this claimed subject matter of claim 48. Moreover, the unexpected results associated with the same overcome any alleged Section 103(a) modification to Zmelty.

Claim 50 requires "b) a zinc oxide inclusive contact layer; c) a silver inclusive layer contacting the zinc oxide inclusive layer b); d) a layer comprising an oxide of NiCr contacting the silver inclusive layer c)." The cited art fails to disclose or suggest this claimed subject matter of claim 50. Moreover, the unexpected results associated with the same overcome any alleged Section 103(a) modification to Zmelty.

Claim 55 requires "an infrared (IR) reflecting layer comprising silver sandwiched between and contacting first and second contact layers; and wherein the first contact layer

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is under the layer comprising silver and comprises zinc oxide, and the second contact layer is over the layer comprising silver and comprises nickel-chrome oxide." The cited art fails to disclose or suggest this claimed subject matter of claim 55. Moreover, the unexpected results associated with the same overcome any alleged Section 103(a) modification to Zmelty.

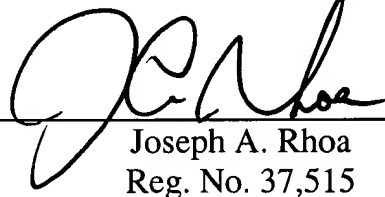
Conclusion

For at least the foregoing reasons, it is respectfully requested that all rejections be withdrawn. All claims are in condition for allowance. If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

Respectfully submitted,

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